AMENDMENTS TO THE CLAIMS

Please amend claims 1, 2, 5-7, 9, 10, and 21, and add new claims 38-42, such that the status of the claims is as follows:

1. (Currently amended) A manufacturing system including a hazard zone and a non-hazard zone, the system comprising:

a storage ~~means~~ device, located in the hazard zone, for electrically storing information;

a communication ~~means~~ device, located in the hazard zone, for storing information to and reading information from the storage ~~means~~ device;

a controller ~~means~~, located in the non-hazard zone and in electrical communication with the communication ~~means~~ device, for controlling the system based on information read from the storage ~~means~~ device by the communication ~~means~~ device; and

an intrinsic safety barrier located in the non-hazard zone and connected between the communication ~~means~~ device and the controller ~~means~~ to limit electrical energy passing to the communication ~~means~~ device.

2. (Currently amended) The manufacturing system of claim 1, wherein the intrinsic safety barrier includes a plurality of forward conduction diodes connected in parallel between the controller ~~means~~ and ground.

3. (Original) The manufacturing system of claim 2, wherein the plurality of forward conduction diodes are arranged in a multiple redundancy configuration.

4. (Original) The manufacturing system of claim 2, wherein the intrinsic safety barrier further includes a fuse connected in series with the plurality of forward conduction diodes to prevent overloading the plurality of forward conduction diodes and to limit electrical energy passing into the hazard zone.

5. (Currently amended) The manufacturing system of claim 2, wherein the intrinsic safety barrier further includes a plurality of DC blocking capacitors connected in series with the controller ~~means~~ and the communication ~~means~~ device.

6. (Currently amended) The manufacturing system of claim 2, wherein the intrinsic safety barrier further includes at least one resistor connected in series with the controller ~~means~~ and the communication ~~means~~ device to suppress transient voltage surges at the communication ~~means~~ device.

7. (Currently amended) The manufacturing system of claim 1, wherein the storage ~~means~~ device comprises a radio frequency identification (RFID) tag.

8. (Original) The manufacturing system of claim 7, wherein the RFID tag comprises a passive radio frequency (RF) transponder and an electrically erasable programmable read-only memory (EEPROM), the EEPROM storing the information.

9. (Currently amended) The manufacturing system of claim 1, wherein the communication ~~means~~ device includes a RF antenna.

10. (Currently amended) The manufacturing system of claim 9, wherein the controller ~~means~~ includes a computer having an RF card, the RF card in electrical communication with the RF antenna.

11. (Original) The manufacturing system of claim 10, wherein the RF card is in electrical communication with the RF antenna via an intrinsically safe transmission line.

12. (Previously presented) A system for handling liquid in a hazard zone comprising:

a container capable of holding the liquid having a radio frequency identification (RFID) tag mounted thereon;

a radio frequency (RF) antenna which is capable of storing information to and reading information from the RFID tag;

a controller coupled with the RF antenna to control processing of the liquid from the container based on information read from the RFID tag by the RF antenna; and

an intrinsic safety barrier connected between the RF antenna and the controller, wherein the container and the RF antenna are located within the hazard zone, and wherein the controller and the intrinsic safety barrier are located within a non-hazard zone.

13. (Original) The system of claim 12, wherein the intrinsic safety barrier includes a plurality of forward conduction diodes connected in parallel between the controller and ground.

14. (Original) The system of claim 13, wherein the plurality of forward conduction diodes are arranged in a multiple redundancy configuration to prevent failure of the intrinsic safety barrier.

15. (Original) The system of claim 13, wherein the intrinsic safety barrier further includes a fuse connected in series with the plurality of forward conduction diodes to prevent overloading the plurality of forward conduction diodes and to limit electrical energy passing into the hazard zone.

16. (Original) The system of claim 13, wherein the intrinsic safety barrier further includes a plurality of DC blocking capacitors connected in series with the controller and the RF antenna.

17. (Original) The system of claim 13, wherein the intrinsic safety barrier further includes at least one resistor connected in series with the controller and the RF antenna to suppress transient voltage surges at the RF antenna.

18. (Original) The system of claim 12, wherein the RFID tag comprises a passive RF transponder and an electrically erasable programmable read-only memory (EEPROM).

19. (Original) The system of claim 18, wherein the EEPROM stores information about the liquid contained in the container.

20. (Original) The system of claim 12, wherein the controller comprises a user-interface capable of receiving input from a user.

21. (Currently amended) The system of claim 20, wherein the controller ~~means~~ further controls processing the liquid based on input received by the user-interface from the user.

22. (Original) The system of claim 12, further comprising

a connector for coupling with the container such that the liquid can be dispensed from the container through the connector.

23. (Original) An intrinsically safe data retrieval system comprising:

a radio frequency identification (RFID) tag containing information to be retrieved, the RFID located in a hazard zone;

a radio frequency (RF) antenna electromagnetically coupled to the RFID tag, the RF antenna located in the hazard zone;

a RF card for communicating with the RF antenna, the RF card located outside the hazard zone; and

an intrinsic safety barrier located outside the hazard zone and connected between the RF antenna and the RF card.

24. (Original) The intrinsically safe data retrieval system of claim 23, wherein the intrinsic safety barrier includes a plurality of forward conduction diodes connected in parallel between the controller and ground.

25. (Original) The intrinsically safe data retrieval system of claim 24, wherein the plurality of forward conduction diodes are arranged in a multiple redundancy configuration to prevent failure of the intrinsic safety barrier.

26. (Original) The intrinsically safe data retrieval system of claim 24, wherein the intrinsic safety barrier further includes a fuse connected in series with the plurality of forward conduction diodes to prevent overloading the plurality of forward conduction diodes and to limit electrical energy passing into the hazard zone.

27. (Original) The intrinsically safe data retrieval system of claim 23, wherein the intrinsic safety barrier includes a plurality of DC blocking capacitors connected in series with the controller and the RF antenna.

28. (Original) The intrinsically safe data retrieval system of claim 23, wherein the intrinsic safety barrier includes at least one resistor connected in series with the controller and the RF antenna to suppress transient voltage surges at the RF antenna.

29. (Original) The intrinsically safe data retrieval system of claim 23, wherein the RFID tag comprises a passive RF transponder and an electrically erasable programmable read-only memory (EEPROM).

30. (Original) The intrinsically safe data retrieval system of claim 23, wherein the RF card communicates with the RF antenna via a transmission line.

31. (Original) The intrinsically safe data retrieval system of claim 30, wherein the RFID tag and the RF antenna are powered through the transmission line.

32. (Previously presented) A hazardous liquid dispensing and filling system comprising:

a liquid reservoir which contains the hazardous liquid to be dispensed;

a container capable of holding the hazardous liquid in fluid communication with the liquid reservoir;

a radio frequency identification (RFID) tag mounted on the container;

a radio frequency (RF) antenna which is capable of storing information to the RFID tag;

a controller coupled with the RF antenna for controlling dispensing of the liquid from the liquid reservoir into the container and for controlling writing information to the RFID tag based on the liquid dispensed into the container; and

an intrinsic safety barrier connected between the RF antenna and the controller,

wherein the container and the RF antenna are located within a hazard zone, and

wherein the controller and the intrinsic safety barrier are located within a non-hazard zone.

33. (Original) The system of claim 32, wherein the intrinsic safety barrier includes a plurality of forward conduction diodes connected in parallel between the controller and ground.

34. (Original) The system of claim 33, wherein the plurality of forward conduction diodes are arranged in a multiple redundancy configuration to prevent failure of the intrinsic safety barrier.

35. (Original) The system of claim 33, wherein the intrinsic safety barrier further includes a fuse connected in series with the plurality of forward conduction diodes to prevent overloading the plurality of forward conduction diodes and to limit electrical energy passing into the hazard zone.

36. (Original) The system of claim 33, wherein the intrinsic safety barrier further includes a plurality of DC blocking capacitors connected in series with the controller and the RF antenna.

37. (Original) The system of claim 33, wherein the intrinsic safety barrier further includes at least one resistor connected in series with the controller and the RF antenna to suppress transient voltage surges at the RF antenna.

38. (New) The manufacturing system of claim 1, wherein the manufacturing system is for fabricating integrated circuits.

39. (New) The system of claim 12, wherein the liquid is for use in the fabrication of integrated circuits.

40. (New) The system of claim 12, wherein the liquid is selected from the group consisting of acids; solvents; bases; photoresists; dopants; inorganic, organic, and biological solutions; pharmaceuticals; and radioactive chemicals.

41. (New) The hazardous liquid dispensing and filling system of claim 32, wherein the liquid is for use in the fabrication of integrated circuits.

42. (New) The system of claim 32, wherein the hazardous liquid is selected from the group consisting of acids; solvents; bases; photoresists; dopants; inorganic, organic, and biological solutions; pharmaceuticals; and radioactive chemicals.